WHAT IS CLAIMED:

1. A method for using a high strength Mg based casting alloy which contains, by weight, more than 12%, and up to 17%, of Al; 0.1 to 10% of Zn; 1 to 10%, of Sn; and 0.05 to 1.5% of Mn, said method comprising the step of injection molding the Mg based casting alloy.

2. A method for using a high strength Mg based casting alloy which contains, by weight, more than 12%, and up to 20%, of Al; 0.1 to 10% of Zn; 1 to 10%, of Sn; and 0.05 to 1.5% of Mn, and has crystal size of 10 to 30 μm, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

3. A method for using a high strength Mg based casting alloy which contains, by weight, 18 to 20% of Al; 0.1 to 5% of Zn; 1 to 10%, of Sn; and less than 1.5% of Mn, and has a tensile strength (x) at 20°C larger than 240 MPa; and an elongation (y) larger than 0.5% and at the same time larger than a value calculated by $y = -0.295x + 78$, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

4. A method for using a high strength Mg based casting alloy, which is injection molded using a metal mold, and which contains, by weight, 12 to 15% of Al; 0.1 to 5% of Zn; 1 to 10% of Sn; 0.1 to 0.5% of Mn, and the remainder contains Mg more than 75%, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

5. A method for using a high strength Mg based casting alloy which contains, by weight, 12 to 15% of Al; 0.1 to 5% of Zn; 1 to 10% of Sn; 0.1 to 0.5% of Mn; at least one element selected from the group consisting of Ca, Si and rare-earth elements of which the total content is less than 5%; at least one kind of element selected from the group consisting of Sr and Sb of which the total content is less than 1%; and the remainder which is consisting essentially of Mg, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

6. A method for using a Mg based casting alloy, which contains, by weight, 12 to 20% of Al; and 1 to 10%, of Sn, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

7. A method for using a Mg based casting alloy, which contains, by weight, 12 to 20% of Al; 1 to 10%, of Sn; and less than 1.5% of Mn, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

8. A method for using a high strength Mg based casting alloy, which contains, by weight, 12 to 15% of Al; 1 to 3% of Zn; 1.5 to 4.5% of Sn; 0.05 to 0.5% of Mn; and the remainder which is consisting essentially of Mg, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

9. A method for using high strength Mg based alloy according to any one

of claims 1 to 4, wherein the Mg based casting alloy contains one kind or more than two kinds of elements selected from the group consisting of Ca, Si and rare-earth elements of which the total content is less than 5% by weight; and at least one kind of element selected from the group consisting of Sr and Sb of which the total content is less than 1%.

10. A method for using a Mg based casting alloy according to any one of claims 6 to 8, wherein the Mg based casting alloy contains one kind or more than two kinds of elements selected from the group consisting of Ca, Si and rare-earth elements of which the total content is less than 5% by weight; and at least one kind of element selected from the group consisting of Sr and Sb of which the total content is less than 1%.

11. A die cast article produced by the method for using a Mg-based casting alloy according to any one of claims 1 to 8.

12. A die cast article produced by the method for using a Mg-based casting alloy according to claim 9.

13. A die cast article produced by the method for using a Mg-based casting alloy according to claim 10.

14. The method for using a Mg-based casting alloy according to any one of claims 2, 6 and 7, wherein the alloy includes 12%-17% Al.

15. A method for using a Mg-based casting alloy according to any one of claims 1, 2, 6, and 7, wherein the Mg based casting alloy is molded using a semi-melted state where a solid phase and a liquid phase of an alloy are mixed.

16. A method for using a high strength Mg based casting alloy, which contains, by weight, more than 10%, and up to 17%, of Al; 0.1 to 10% of Zn; 1 to 10%, of Sn; and 0.05 to 1.5% of Mn, whose surface is covered with an oxide film which contains Mg of 15 to 35% by atoms, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

17. A method for using a high strength Mg based casting alloy according to claim 16, wherein said oxide film further includes an oxide of Al of less than 15% by atoms.

18. A method for using a high strength Mg based casting alloy which contains, by weight, more than 10%, and up to 17%, of Al; 0.1 to 10% of Zn; 1 to 10%, of Sn; and 0.05 to 1.5% of Mn, whose surface is covered with an inert oxide film having a natural immersion electric potential, 30 minutes after immersing into an aqueous solution of 0.01 mol $Na_2B_4O_7$, pH of 9.2 and a temperature of 25°C, which is greater than -1500mV, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

19. A method for using a high strength Mg based casting alloy according to any one of claims 1 to 4, wherein the Mg based casting alloy consists

essentially of the Al, the Zn, the Sn, the Mn and Mg.

20. A method for using a high strength Mg based casting alloy according to claim 5, wherein the Mg based casting alloy consists essentially of the Al, the Zn, the Sn, the Mn, the at least one element selected from the group consisting of Ca, Si and rare-earth elements, and the at least one element selected from the group consisting of Sr and Sb, and the Mg.

21. A method for using a high strength Mg based alloy, which contains, 12 to 20% of Al by weight, 0.1 to 10% of Zn by weight, 0.5 to 10% of Sn, and 0.05 to 1.5% of Mn; and the remainder which is consisting essentially of Mg, the method comprising the step of injection molding the Mg based casting alloy using a metal mold.

22. A method for using a high strength Mg based casting alloy which contains, by weight, 12 to 15% of Al; 0.1 to 5% of Zn; 1 to 10% of Sn; 0.1 to 0.5% of Mn; at least one element selected from the group consisting of Ca, Si and rare-earth elements of which the total content is less than 5%; at least one kind of element selected from the group consisting of Sr and Sb of which the total content is less than 1%; and the remainder which is consisting essentially of Mg, whose surface is covered with an oxide film which contains Mg of 15 to 35% by atoms, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

23. A method for using a high strength Mg based casting alloy which

contains, by weight, 12 to 20% of Al; and 1 to 10%, of Sn, whose surface is covered with an oxide film which contains Mg of 15 to 35% by atoms, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

24. A method for using a high strength Mg based casting alloy which contains, by weight, 2 to 20% of Al; 1 to 10%, of Sn; and less than 1.5% of Mn, whose surface is covered with an oxide film which contains Mg of 15 to 35% by atoms, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

25. A method for using a high strength Mg based casting alloy which contains, by weight, 12 to 15% of Al; 0.1 to 5% of Zn; 1 to 10% of Sn; 0.1 to 0.5% of Mn; at least one element selected from the group consisting of Ca, Si and rare-earth elements of which the total content is less than 5%; at least one element selected from the group consisting of Sr and Sb of which the total content is less than 1%; and the remainder which is consisting essentially of Mg, whose surface is covered with an inert oxide film having a natural immersion electric potential, 30 minutes after immersing into an aqueous solution of 0.01 mol $Na_2B_4O_7$, pH of 9.2 and a temperature of 25°C, which is greater than -1500mV, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

26. A method for using a high strength Mg based casting alloy which contains, by weight, 12 to 20% of Al; and 1 to 10%, of Sn, whose surface is

covered with an inert oxide film having a natural immersion electric potential, 30 minutes after immersing into an aqueous solution of 0.01 mol $Na_2B_4O_7$, pH of 9.2 and a temperature of 25°C, which is greater than -1500mV, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

27. A method for using a high strength Mg based casting alloy which contains, by weight, 2 to 20% of Al; 1 to 10%, of Sn; and less than 1.5% of Mn, whose surface is covered with an inert oxide film having a natural immersion electric potential, 30 minutes after immersing into an aqueous solution of 0.01 mol $Na_2B_4O_7$, pH of 9.2 and a temperature of 25°C, which is greater than -1500mV, said method comprising the step of injection molding the Mg based casting alloy using a metal mold.

28. A method for using a high strength Mg based casting alloy according to any one of claims 1, 2, 4, 5, 6, 7 and 8, wherein said alloy has an elongation (y) larger than 0.5%.

29. A method for using a high strength Mg based casting alloy according to any one of claims 1 to 8, wherein said alloy has an elongation (y) larger than 3.5%.